

The Fishes of Great Britain and Ireland. Being a Natural History of such as are known to inhabit the Seas and Fresh Waters of the British Isles, with remarks on their Economic Uses, and Various Modes of Capture. By Francis Day, F.L.S., &c. (London: Williams and Norgate, 1880-1883.)

THIS new work on the "Fishes of Great Britain and Ireland" is to consist of nine parts and about 200 plates. Of these the first six parts, bringing the pages to 176, and the plates to 132, have already appeared. Not only is the natural history of the marine and freshwater fishes given with very copious synonymy, but we find in addition the habits of the fish detailed, the means of their capture, the artificial breeding, the use for food, and the best methods of cooking given. The scientific merits of the book are such as we might expect from the author of "The Fishes of India," and from one who occupied the important post of Inspector General of Fisheries in India, while there is further, in the accounts of the habits of the fish and of their means of capture, an amount of most interesting details to the general reader and sportsman. The plates are from drawings by the author, and though uncoloured are very effective. In most cases where desirable the stomach and pyloric appendages, the air bladder or the mouth with the teeth are added to the portrait of the species. When completed the work will form a handsome royal octavo volume.

Parrots in Captivity. By W. T. Greene, M.A., M.D., and with Notes on several of the Species by the Hon. and Rev. F. G. Dutton. Coloured Plates. (London: George Bell and Sons, 1883.)

THREE parts of this well-illustrated work on parrots kept in captivity have already been published, and considering the extent to which these splendidly coloured and interesting birds are to be found domesticated in our country, this treatise on their habits will no doubt be very acceptable to many of our readers. The directions given as to their food seem based on practical experience, and will be welcome to some who in this respect may have wrongly treated some favourite bird. The author insists pretty strongly on not characterising a species by the behaviour of an individual, fairly arguing that it is just as wrong to declare that all the cockatoos are noisy and spiteful or that all the lorries are amiable and well-behaved as it would be to declare that all Englishmen are lively or all Frenchmen sad because persons of these nations had been met with having these characteristics.

Voyages of G. S. Karelin on the Caspian Sea. Memoirs of the Russian Geographical Society; Section of Physical Geography, vol. x. 497 pp. (St. Petersburg, 1883.)

M. KARELIN, who died in 1872, in the province of Orenburg, to which he was exiled in 1824, was well known to naturalists in Russia and Western Europe as an indefatigable collector in mineralogy, botany, and zoology, who supplied Russian and foreign museums with rich collections from Eastern Russia and Siberia. But, with the exception of a few papers in botany and zoology, none of his most valuable works have appeared in print. Most of his manuscripts are lost, and of his remarkable journey to the Altaï and Sayan, where he spent several years making his richest collections, only a few fragments of diaries have been discovered. Prof. Bogdanoff publishes now the two diaries that Karelin kept during his journeys to the eastern coasts of the Caspian Sea, performed in small vessels in 1832 and 1836. During the first of these voyages Karelin visited the north-eastern coast and the Gulf of Mertvyi Kultuk; four years later he visited the Gulfs of Astrabad, Krasnovodsk, Kara-Bugaz, &c., and penetrated also into the country, making an excursion into the Astrabad province, and another to the great Balkhan Mountains, where he entered into

communication with the Turkomans. All these tracts have been visited and described since, but still the reading of Karelin's diary, which shows a fine observer of the physical characters of the countries visited, and of the people met with, is a real pleasure; while numerous remarks on the flora and fauna, scattered in the diaries, have lost very little, or nothing, of their interest from the more recent descriptions. Both diaries are followed by most valuable general descriptions of the flora and fauna of the shores of the Caspian; the lists of species met with, altogether exactly determined, have been revised by Prof. Strauch and M. Gobi, thanks to the numerous collections he made during his journeys. His remarks on the old bed of the Amu-daria, which he visited and mapped in 1836 as far as 37° E. long., are fully confirmed by recent researches; whilst his descriptions of the nature and inhabitants of the province of Astrabad and of the Turkoman coast, and his remarks on the falling of level of the Caspian, are still as valuable as if they were written to-day. The work is accompanied with maps of the Gulfs of Astrabad, Hassankuli, and Krasnovodsk, and of the Balkhan Mountains, which enable us to conclude as to the changes in the configuration of the coast line during the last fifty years.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts, No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

The Green Sun

FOR two or three days we have been having a modified repetition of the phenomena respecting which I wrote you at some length by the last mail; while, curiously enough, if there is no connection between them, the telegraph announces fresh eruptions in Java on the 16th inst. This time, however, while there is apparently about the same smoky haze in the sky, it is much thinner, showing very plainly after the sun has set, but invisible while the sun is much above the horizon. There is also very little of the refracting medium to which I referred in my last, as there is only a slight discolouration of the sun before setting, and scarcely anything of the succession of colours afterward as compared with what we had two weeks ago. I send herewith a few clippings from Indian papers in regard to the matter. The curious appearance of two weeks ago, so far as I can learn, was not seen north of Masulipatam on this side, or Calicut on the west coast. W. R. MANLEY

Ongole, India, September 24

The following cutting, sent us by Mr. Manley, is from the *Englishman's Overland Mail* of September 23:—

Some excitement has been caused in Madras lately by the fact that many persons have observed that both the sun and the moon presented a green appearance when near setting. Prof. Michie Smith thus explains the phenomenon in the *Madras Mail*:—The appearance of a green sun is very uncommon so far as I can discover, but fortunately there is one recorded observation which throws much light on the subject. Lockyer once observed the sun to be of a vivid green when seen through the steam of a little paddle boat on Windermere. This at once points to the solution of the difficulty, and shows us that the cause of the appearance is due to water vapour in the atmosphere. That it is entirely due to this I am not prepared to affirm, for some observations of Dr. Schuster point to an influence produced by suspended matter in the air. This, however, I think we may neglect at present, and consider why the vapour which usually gives us the red sunset tints should at present give green colours. To settle this point I have made careful spectroscopic observations, and, though I have not yet reduced them, I find that they indicate a very marked absorption in the red end of the spectrum extending nearly to B, with a great development of the "rain band" near D on the red side accom-

panied by a decided deficiency of the band on the green side, called by Piazzzi Smyth "the low sun band." Hence we have less red than usual and more green. This is due, in part at least, to the sunlight passing through a more than ordinary dense stratum of aqueous vapour, for we know that the thicker the stratum of vapour the more is the red light absorbed. But this is not all, for we have quite as much vapour without this green colour, but in these cases the sun, I believe, is not seen at all, but we get strips of green sky which are often seen. The atmosphere then, I believe, contains at present a large amount of vapour existing actually as vapour, and not condensed into clouds; hence even a great thickness of it is transparent except to those particular rays which aqueous vapour absorbs. The green colour can be seen only at a particular altitude, for only there is the thickness sufficient to produce the necessary absorption. At higher altitudes the peculiar pale silvery white is exactly what we are to expect.

Will you allow me to submit to the further consideration of the competent whether this phenomenon, seen at approximately the same time in Southern India, Ceylon, and the West Indies, could be due solely to the presence in the atmosphere of the vapour of water. Is not the air in these regions normally surcharged through a considerable period of every year with vapour of water? And yet not only is this an unusual appearance, but it has excited, wherever observed, both wonder and some alarm. In one respect the observation from Ceylon (*NATURE*, vol. xxviii. p. 597) is the most noticeable we have had yet, inasmuch as, even when the sun had attained "the very zenith," his light is said to have continued blue. My doubt is whether a phenomenon so rare could be due solely to a cause so everywhere common.

HENRY CECIL

Bregner, Bournemouth, October 22

P.S.—When Mr. Lockyer saw his green sun through the steam on the boat, were there not also mingling with the vapour sulphurous fumes from the funnel?

[The sun has been seen green through mist on the Simplon.—ED.]

Snake Poison

TOUCHING the effect of *Crotalus* venom on vegetable life, I am anxious to repair an error which appears on p. 552 of my work on "Snakes," where Dr. Mitchell is made to affirm that some healthy vegetables inoculated with the poison were "withered and dead next day, as if scathed by lightning." In some notes which I made many years ago on a too cursory reading of Dr. Mitchell's paper,¹ I omitted the inverted commas, which denote that the experiment was tried by Dr. Gillman of St. Louis, in 1854, but which Dr. Mitchell thought was too limited and wanting in detail to be of scientific value. I had overlooked Dr. Mitchell's comments and his own experiments on vegetable life, by which he was driven to the conclusion that the plants were injured by mechanical wounds, and not by the venom inserted into them. When writing my chapter under pressure of time long afterwards, I trusted too confidently to those careless notes, and to an impression gained through the old Virginia writers that venom is injurious to vegetable life.

But in a most interesting series of experiments twenty-five years ago Dr. Weir Mitchell found that the venom did not interfere, nor did it arrest alcoholic fermentation and its accompanying growth of sporules. To test it on the higher vegetable life he wounded plants in various parts of their stem and in various ways, taking three or four plants of similar size and growth—geraniums, tradescantia, and others—both succulent and of woody fibre, inserting venom into some and not into the others which were identical in character, and carefully noting the effects on each, which, for the most part, were similar in the inoculated and the merely wounded plants, the symptoms being such as were produced from the injury to the tissue, the leaf, or stem, as might be. "In many successive efforts to poison other plants with venom," says Dr. Mitchell in summing up the results, "*I failed in every instance.*"

A more careful perusal of Dr. S. W. Mitchell's paper now enables me to offer this explanation of the misrepresentation of

¹ "On the Venom of the Rattlesnake," by Dr. S. Weir Mitchell, "Smithsonian Contributions to Knowledge," vol. xii. 1856. Washington, D.C., United States.)

those exceedingly interesting experiments, fully detailed in vol. xii. of the "Smithsonian Contributions."

Cleveland, Ohio

CATHERINE C. HOPLEY

Simultaneous Affections of the Barometer

MY thanks are due to Dr. Balfour Stewart for his kindly pointing out that simultaneous movements of the barometer, like those I had described in my paper of January last, and also in the "Brief Sketch of the Meteorology of the Bombay Presidency in 1881," written in August, 1882, were first observed by the late John Allan Broun. Owing to my connection with meteorological work being short—of only fourteen months' duration—my attention had not before been drawn to this fact. It is to me interesting to learn also that the late John Allan Broun considered that there was a connection between these movements and the earth's magnetism.

The *Proceedings of the Manchester Literary and Philosophical Society* for the last few years do not appear to have been received in Bombay, but they have now been applied for.

A. N. PEARSON

Meteorological Office, Bombay, September 14

Table of Different Velocities

IN reading over the interesting table of velocities drawn up by Mr. James Jackson, and published in *NATURE* to-day (p. 604), there is one item omitted, which the author may like to add to his list, viz. the rate at which detonation travels, as exemplified by a train of compressed gun-cotton. This has been computed by Abel and Nobel to be between 17,000 and 19,000 feet per second, or rather more than 200 miles in a minute. In Mr. Jackson's table, therefore, the detonation of gun-cotton would come in somewhere between the velocity of sound in water and the velocity of electricity.

H. BADEN PRITCHARD

Woolwich, October 18

OSWALD HEER

WE briefly announced last week the death, on September 27, at Lausanne, of Dr. Oswald Heer, Professor of Botany in the University of Zurich, aged seventy-four years and twenty-seven days. He was born at Nieder Uzwyll, Glarus, Switzerland, August 31, 1809. His whole mind seems to have been imbued from an early age with an intense love of nature, and his devotion to it led him to prefer its study to the discipline of the Church, which he had entered. Heer's early reputation was made as an entomologist, and from 1834 forwards he published many works and papers on entomology, chiefly on Swiss insects, and more especially on Coleoptera, most of which treated exhaustively on the vertical distribution of species in the Alps. Possibly he is best known (as an entomologist) in this country by his monographic work on the beetles of Switzerland, which appeared in 1838–41. In this work he did for the Coleoptera of that country what Frey has more recently done for the Lepidoptera, but, of course, lapse of time has rendered Heer's labours out of date as compared with Frey's. This monograph appeared in two forms, but that which is best known was styled "*Fauna Coleopterorum Helvetica*," and extended to over 600 pages. But his attention was soon attracted, perhaps by some fortunate chance, towards the remains of plants which were being disinterred from the Tertiaries to the north of Lausanne and elsewhere on the Lake of Geneva, and his whole energy became absorbed in unravelling and restoring the vegetation of the past, and continued so until the close of a laborious life. In 1855 appeared the sumptuous "*Tertiary Flora of Switzerland*," a work which at once placed him in the first rank as a specialist; and being a prolific and imaginative writer, untiring industry, he has since contributed to palaeontology a nearly uninterrupted series of works on his favourite subjects, terminating but last year with the sixth volume of the "*Flora Fossilis Arctica*." Few earnest workers have lived to see their work more highly appreciated, and the gratification he must have felt at the sub-